UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/681,556	10/08/2003	Henry Chang	100201439-1	7781

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EXAMINER
WANG, BEN C

ART UNIT	PAPER NUMBER
2192	

NOTIFICATION DATE	DELIVERY MODE
08/20/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

JERRY.SHORMA@HP.COM
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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 April 2008 and 08 June 2009*.
2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2 and 4-17* is/are pending in the application.
    4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5)☐ Claim(s) _____ is/are allowed.
6)☒ Claim(s) *1,2,4-6,8-13 and 15-17* is/are rejected.
7)☒ Claim(s) *7 and 14* is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.
10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.
    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
    a)☐ All   b)☐ Some * c)☐ None of:
        1.☐ Certified copies of the priority documents have been received.
        2.☐ Certified copies of the priority documents have been received in Application No. _____.
        3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.
5)☐ Notice of Informal Patent Application
6)☐ Other: _____.

DETAILED ACTION

1.   In view of the Appeal Brief filed on April 11, 2008 and June 8, 2009,

PROSECUTION IS HEREBY REOPENED. The Office Action set forth below.

To avoid abandonment of the application, appellant must exercise one of

the following two options:

(1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a

reply under 37 CFR 1.113 (if this Office action is final); or,

(2) initiate a new appeal by filing a notice of appeal under 37 CFR 41.31

followed by an appeal brief under 37 CFR 41.37. The previously paid notice of

appeal fee and appeal brief fee can be applied to the new appeal. If, however,

the appeal fees set forth in 37 CFR 41.20 have been increased since they were

previously paid, then appellant must pay the difference between the increased

fees and the amount previously paid.

A Supervisory Patent Examiner (SPE) has approved of reopening

prosecution by signing below.

2.   Applicant's appeal brief dated April 11, 2008 and June 8, 2009

respectively responding to the Office action mailed November 14, 2007 provided

in the rejection of claims 1, 2, 4-6, 8-13 and 15-17; and in the objection of claims

7 and 14.

Claims 1-2 and 4-17 remain pending in the application and which have

been fully considered by the examiner.

Applicant's arguments with respect to claims rejection under 35 U.S.C. § 103 obviousness based upon (a) Shmuel Ur in view of Cahill, Benlarbi, and Mitchell; (b) Shmuel Ur in view of Cahill, Benlarbi, Mitchell, and Kuzmin have been fully considered but are moot in view of the new grounds of rejection – see *Haghighat et al.* - art made of record, as applied hereto.

Specification

The specification amendment received on 01/11/2008. The changes are acknowledged and accepted.

Claim Rejections – 35 USC § 102(e)

The following is quotation of 35 U.S.C. 102(e) which form the basis for all obviousness rejections set forth in this office action:

> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3.   Claims 1, 2, 8-10 and 15-17 are rejected under 35 U.S.C. 102(e) as being anticipated by Haghighat et al. (Pub. No. US 2004/0154001 A1) (hereinafter 'Haghighat' - art made of record)

4.   **As to claim 1** (Previously Presented), Haghighat discloses a method for testing software, comprising:

- examining an application software program including calls to system classes with both a static analysis tool and a dynamic analysis tool (e.g., Fig. 2, element 202 – Compiler Pass; [0016] - … the compiler inserts probe instructions ... to keep track of information regarding execution of the application …; Fig. 5, element 509 – PGT Executive; [0047] - … performed by a software tool … as a Profile-Guided Testing ("PGT") Executive tool program; [0048] - … the tool program 509 may include a relation finder 520, and a priority determiner 530);

- determining a static use count of said system classes from the examining (e.g., TABLE 2 – Static Frequency; [0031] - … These reference counts are referred to as static frequency …);

- deriving a dynamic use count of each of said system classes during operation of said application software program from the examining (e.g., TABLE 2 – Dynamic Frequency; [0032] - … dynamic frequency counts f_11 and F_12 are maintained in the profile for the first and second static calls to component P1 … the dynamic frequency count takes into account the dynamic run-time behavior of the test …);

- assigning a proportional weighing attribute to each system class based on its corresponding static use count and dynamic use count (e.g., Fig. 5, elements 530 – <u>Priority Determiner</u>; 532 – <u>Static Priority Determiner</u>; 534 – <u>Dynamic Priority Determiner</u>; [0039] - … the prioritization 404 further includes sorting the tests of the identified test group that have a non-zero priority. Such tests may be sorted based on their priority values to

generate 406 an order list 140. The list 140 suggests the order in which

test of the regression test group should be run in order to enhance the

probability of detecting an error ...; [0050] – the priority determiner 530 ...

analyzes a change set to select, prioritize, and order suggested tests and

generate an ordered list ...); and

- testing said system classes in order according to said corresponding

  proportional weighing attributes (e.g., Fig. 4, elements – 406 – Generate

  ordered list; 140 – Ordered test list; [0020] - ... An ordered list 140 of

  suggested tests is generated as a result of such analysis 106 ...; [0039] -

  ... The list 140 suggest the order in which tests of the regression test

  group should be run in order to enhance the probability of detecting an

  error ...)

5.   **As to claim 2** (Original) (incorporating the rejection in claim 1), Haghighat

disentangles the method wherein:

- the step of testing is such that only the most heavily weighted portion

  of all such system classes are tested at all (e.g., [0005] - ... It would be

  beneficial to reduce testing time by running only those tests in the

  regression test group that correspond to application components that

  are likely to be implicated by the current change set ...)

6.   **As to claim 8** (Original) (incorporating the rejection in claim 1), Haghighat

discloses the method wherein:

- the testing the system classes further comprises ending a test when a

  testing resource is exhausted and prior to testing a last entry having a

  least weight (e.g., Fig. 5, elements 530 – <u>Priority Determiner</u>; 532 –

  <u>Static Priority Determiner</u>; 534 – <u>Dynamic Priority Determiner</u>; [0039] -

  … the prioritization 404 further includes sorting the tests of the

  identified test group that have a non-zero priority. Such tests may be

  sorted based on their priority values to generate 406 an order list 140.

  The list 140 suggests the order in which test of the regression test

  group should be run in order to enhance the probability of detecting an

  error …; [0050] – the priority determiner 530 ... analyzes a change set

  to select, prioritize, and order suggested tests and generate an ordered

  list …)

7.   **As to claim 9** (Original) (incorporating the rejection in claim 8), Haghighat

discloses the method wherein:

- the testing the system classes further comprises ending a test when at

  least a limit of available time or funding is exhausted and prior to

  testing a last entry having a least weight (e.g., Fig. 4, elements – 406 –

  Generate ordered list; 140 – Ordered test list; [0020] - … <u>An ordered</u>

  <u>list</u> 140 of suggested tests is generated as a result of such analysis

  106 …; [0039] - … The list 140 suggest the order in which tests of the

  regression test group should be run in order to enhance the probability

  of detecting an error ...)

8.   **As to claim 10** (Previously Presented), Haghighat discloses a machine-
readable medium on which is encoded machine- readable code for testing
object-oriented system software having system classes, the machine readable
code comprising:

- machine-readable code for running a static analysis tool for examining
  an application software program, the application software program
  including calls to the system classes (e.g., Fig. 2, element 202 –
  Compiler Pass; [0016] - … the compiler inserts probe instructions … to
  keep track of information regarding execution of the application …; Fig.
  5, element 509 – PGT Executive; [0047] - … performed by a software
  tool … as a Profile-Guided Testing ("PGT") Executive tool program;
  [0048] - … the tool program 509 may include a relation finder 520, and
  a priority determiner 530);

- machine-readable code for determining a static use count of the
  system classes in the application software program from the result
  (e.g., TABLE 2 – Static Frequency; [0031] - … These reference counts
  are referred to as static frequency …);

- machine-readable code for running a dynamic analysis tool for
  examining the application software program and producing a dynamic
  use count based on the application software program's dynamic use of
  the system functions while running the application software program
  (e.g., TABLE 2 – Dynamic Frequency; [0032] - … dynamic frequency

counts f_11 and F_12 are maintained in the profile for the first and

second static calls to component P1 ... the dynamic frequency count

takes into account the dynamic run-time behavior of the test ...);

- machine-readable code for assigning to each system class a weight

  based on the static use count and the dynamic use count, and

  machine-readable code for testing the system classes, in order, based

  on the assigned weight, from a first entry having a greatest weight

  (e.g., Fig. 5, elements 530 – Priority Determiner; 532 – Static Priority

  Determiner; 534 – Dynamic Priority Determiner; [0039] - ... the

  prioritization 404 further includes sorting the tests of the identified test

  group that have a non-zero priority. Such tests may be sorted based

  on their priority values to generate 406 an order list 140. The list 140

  suggests the order in which test of the regression test group should be

  run in order to enhance the probability of detecting an error ...; [0050]

  – the priority determiner 530 ... analyzes a change set to select,

  prioritize, and order suggested tests and generate an ordered list ...)

9.   **As to claim 15** (Previously Presented), Haghighat discloses a machine-

readable medium on which is encoded a software tester program code, the

software tester program code comprising:

- means for examining an application software program including calls to

  system classes with both a static analysis tool and a dynamic analysis

  tool (e.g., Fig. 2, element 202 – Compiler Pass; [0016] - ... the

compiler inserts probe instructions ... to keep track of information

regarding execution of the application ...; Fig. 5, element 509 – PGT

Executive; [0047] - ... performed by a software tool ... as a Profile-

Guided Testing ("PGT") Executive tool program; [0048] - ... the tool

program 509 may include a relation finder 520, and a priority

determiner 530);

- means for determining a static use count of said system classes from

   the examining (e.g., TABLE 2 – Static Frequency; [0031] - ... These

   reference counts are referred to as static frequency ...);

- means for deriving a dynamic use count of each of said system

   classes during operation of said application software program from the

   examining (e.g., TABLE 2 – Dynamic Frequency; [0032] - ... dynamic

   frequency counts f_11 and F_12 are maintained in the profile for the

   first and second static calls to component P1 ... the dynamic frequency

   count takes into account the dynamic run-time behavior of the test ...);

- means for assigning a proportional weighing attribute to each system

   class based on its corresponding static use count and dynamic use

   count (e.g., Fig. 5, elements 530 – Priority Determiner; 532 – Static

   Priority Determiner; 534 – Dynamic Priority Determiner; [0039] - ... the

   prioritization 404 further includes sorting the tests of the identified test

   group that have a non-zero priority. Such tests may be sorted based

   on their priority values to generate 406 an order list 140. The list 140

   suggests the order in which test of the regression test group should be

run in order to enhance the probability of detecting an error ...; [0050]

– the priority determiner 530 ... analyzes a change set to select,

prioritize, and order suggested tests and generate an ordered list ...);

and

- means for testing said system classes in order according to said

  corresponding proportional weighing attributes (e.g., Fig. 4, elements –

  406 – Generate ordered list; 140 – Ordered test list; [0020] - ... An

  ordered list 140 of suggested tests is generated as a result of such

  analysis 106 ...; [0039] - ... The list 140 suggest the order in which

  tests of the regression test group should be run in order to enhance the

  probability of detecting an error ...)

10.   **As to claim 16** (Original) (incorporating the rejection in claim 15),

Haghighat discloses the tester wherein:

- the means for testing is such that only the most heavily weighted

  portion of all such system classes are tested at all (e.g., Fig. 5,

  elements 530 – Priority Determiner; 532 – Static Priority Determiner;

  534 – Dynamic Priority Determiner; [0039] - ... the prioritization 404

  further includes sorting the tests of the identified test group that have a

  non-zero priority. Such tests may be sorted based on their priority

  values to generate 406 an order list 140. The list 140 suggests the

  order in which test of the regression test group should be run in order

  to enhance the probability of detecting an error ...; [0050] – the priority

determiner 530 ... analyzes a change set to select, prioritize, and order

suggested tests and generate an ordered list ...)

11.   **As to claim 17** (Previously Presented), Haghighat discloses a business

model for testing software, comprising:

- setting a resource limit on the available time or money that is devoted

  to testing a particular application software program (e.g., [0005] - ... It

  would be beneficial to reduce testing time by running only those tests

  in the regression test group that correspond to application components

  that are likely to be implicated by the current change set ...);

- examining said application software program including calls to system

  classes with both a static analysis tool and a dynamic analysis tool

  (e.g., Fig. 2, element 202 – Compiler Pass; [0016] - ... the compiler

  inserts probe instructions ... to keep track of information regarding

  execution of the application ...; Fig. 5, element 509 – PGT Executive;

  [0047] - ... performed by a software tool ... as a Profile-Guided Testing

  ("PGT") Executive tool program; [0048] - ... the tool program 509 may

  include a relation finder 520, and a priority determiner 530);

- determining a static use count of said system classes from the

  examining (e.g., TABLE 2 – Static Frequency; [0031] - ... These

  reference counts are referred to as static frequency ...);

- deriving a dynamic use count of each of said system classes during

  operation o f said application software program from the examining

(e.g., TABLE 2 – Dynamic Frequency; [0032] - ... dynamic frequency counts f_11 and F_12 are maintained in the profile for the first and second static calls to component P1 ... the dynamic frequency count takes into account the dynamic run-time behavior of the test ...);

- assigning a proportional weighing attribute to each system class based on its corresponding static use count and dynamic use count (e.g., Fig. 5, elements 530 – Priority Determiner; 532 – Static Priority Determiner; 534 – Dynamic Priority Determiner; [0039] - ... the prioritization 404 further includes sorting the tests of the identified test group that have a non-zero priority. Such tests may be sorted based on their priority values to generate 406 an order list 140. The list 140 suggests the order in which test of the regression test group should be run in order to enhance the probability of detecting an error ...; [0050] – the priority determiner 530 ... analyzes a change set to select, prioritize, and order suggested tests and generate an ordered list ...);

- testing said system classes in order according to said corresponding proportional weighing attributes and proceeding down to the least heavily weighted system classes (e.g., Fig. 4, elements – 406 – Generate ordered list; 140 – Ordered test list; [0020] - ... An ordered list 140 of suggested tests is generated as a result of such analysis 106 ...; [0039] - ... The list 140 suggest the order in which tests of the regression test group should be run in order to enhance the probability of detecting an error ...); and

- stopping testing when said resource limit is reached (e.g., [0005] - ... It

  would be beneficial to reduce testing time by running only those tests

  in the regression test group that correspond to application components

  that are likely to be implicated by the current change set ...)

Claim Rejections – 35 USC § 103(a)

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this office action:

(a) A patent may not be obtained though the invention is not identically disclosed or
described as set forth in section 102 of this title, if the differences between the subject matter
sought to be patented and the prior art are such that the subject matter as a whole would
have been obvious at the time the invention was made to a person having ordinary skill in the
art to which said subject matter pertains. Patentability shall not be negatived by the manner
in which the invention was made.

12.   Claims 4-6 and 11-13 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Haghighat

13.   **As to claim 4** (Original) (incorporating the rejection in claim 1), Haghighat

discloses Static Frequency and Dynamic Frequency (e.g., TABLE 2) and Priory

Determiner, Static Priority Determiner and Dynamic Priority Determiner (e.g., Fig.

5), but does explicitly discloses the limitations stated below.

However, it is well know in the art to assigning a static observation

percentage to each system class by dividing said static use count by a sum of all

static use counts.

Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made to use the static observation percentage into the Haghighat's system to further provide the limitations stated above in the Haghighat system.

14.   **As to claim 5** (Original) (incorporating the rejection in claim 1), Haghighat discloses Static Frequency and Dynamic Frequency (e.g., TABLE 2) and Priory Determiner, Static Priority Determiner and Dynamic Priority Determiner (e.g., Fig. 5), but does explicitly discloses the limitations stated below

However, it is well know in the art to assigning a dynamic observation percentage to each system class by dividing said dynamic use count by a sum of all dynamic use counts.

Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made to use the dynamic observation percentage into the Haghighat's system to further provide the limitations stated above in the Haghighat system.

15.   **As to claim 6** (Original) (incorporating the rejection in claim 1), please refer to claims **4** and **5** above, accordingly.

16.   **As to claim 11** (Original) (incorporating the rejection in claim 10), please refer to claim **4** above, accordingly.

17.   **As to claim 12** (Original) (incorporating the rejection in claim 10), please

refer to claim **5** above, accordingly.

18.   **As to claim 13** (Original) (incorporating the rejection in claim 10), please

refer to claim **6** above, accordingly.

Allowable Subject Matter

19.   Claims 7 and 14 are objected to as being dependent upon a rejected base

claim, but would be allowable if rewritten to overcome all the limitations of the

base claim and any intervening claims.

The following is an examiner's statement of reasons for allowance:

        Regarding claims 7 and 14, prior art of record fails to reasonably show or

suggest the specific weighting scheme as claimed. Specifically, the assigning a

first weight defined by a first constant plus a sum of the static use count plus the

dynamic use count, a second weight equal to the first constant, further assigning

a third weight as a second constant that is less than the first constant (which is

added a sum of the static and dynamic observation percentage), and assigning

to all remaining classes a fourth weight less than the second constant.

Conclusion

20.   Any inquiry concerning this communication or earlier communications from

the examiner should be directed to Ben C. Wang whose telephone number is

571-270-1240. The examiner can normally be reached on Monday - Friday, 8:00

a.m. - 5:00 p.m., EST.

If attempts to reach the examiner by telephone are unsuccessful, the

examiner's supervisor, Tuan Q. Dam can be reached on 571-272-3695. The fax

phone number for the organization where this application or proceeding is

assigned is 571-273-8300.

Information regarding the status of an application may be obtained from

the Patent Application Information Retrieval (PAIR) system. Status information

for published applications may be obtained from either Private PAIR or Public

PAIR. Status information for unpublished applications is available through

Private PAIR only. For more information about the PAIR system, see http://pair-

direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-

free). If you would like assistance from a USPTO Customer Service

Representative or access to the automated information system, call 800-786-

9199 (IN USA OR CANADA) or 571-272-1000.

/Ben C Wang/   /Tuan Q. Dam/
Ben C. Wang   Supervisory Patent Examiner, Art Unit 2192
Examiner, Art Unit 2192